

Synergistic support for the liver and gallbladder

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LV-GB Complex™ provides support for liver and gallbladder function by providing lipotropic substances that aid in the elimination of fatty substances from the liver and promote proper bile flow.* The nutrients and herbal extracts in this product also support healthy detoxification pathways and optimal digestion and absorption of dietary fats and fat-soluble nutrients.* This product is ideal for individuals who need support for liver function, those who have had their gallbladder removed, and patients living with skin issues that may be helped by improved absorption of fat, particularly essential fatty acids.

Liver support

Methionine, vitamins B12 and B6 support methylation reactions critical for effective detoxification while methionine, vitamin B6 and artichoke help maintain healthy glutathione status.¹ Additionally, as vitamin A precursors, the mixed carotenoids in this product, along with artichoke leaf extract, may induce sulfotransferase enzymes needed for detoxification. LV-GB Complex™ also contains the sulfur-containing amino acid taurine, which is crucial for phase II conjugation.

Milk thistle (*Silybum marianum*) is one of the most well-researched protective herbs for hepatocytes and has even demonstrated the ability to promote the regeneration of liver cells in subjects with hepatitis and other liver disorders, possibly owing to increased hepatocyte protein synthesis.^{2,3} Milk thistle has also been shown to protect against liver cell injury from ethanol, acetaminophen, carbon tetrachloride or iron overload, and it inhibits the lipoxygenase enzyme, giving it antioxidant and anti-lipid peroxidation effects.^{3,4} Additional effects include aiding in bile flow, protecting against fibrosis, reducing the production of inflammatory cytokines, and potentially increasing insulin sensitivity.⁵

Inositol is another beneficial compound for the liver. Rodent models of non-alcoholic fatty liver disease (NAFLD) induced via a high-fructose diet show that inositol supplementation helps reduce the buildup of liver fat and expression of genes related to fatty acid synthesis.⁶ Rodent models of type 2 diabetes indicate that inositol supplementation (along with inositol hexaphosphate) increases liver reduced glutathione levels and reduces liver triglyceride accumulation and serum alkaline phosphatase activity while significantly increasing hepatic superoxide dismutase and catalase activity, resulting in the preservation of liver cell integrity and improved antioxidant status.⁷

Artichoke (*Cynara scolymus*) has been found to enhance glutathione peroxidase activity and decrease production of reactive oxygen species. In a randomized, placebo-controlled trial, patients with non-alcoholic steatohepatitis (NASH) treated with artichoke extract showed significant reductions in serum AST and ALT liver enzymes, total cholesterol, LDL-C, systolic blood pressure and blood glucose levels.⁸ Like milk thistle, artichoke has been shown to have antioxidant, choleric and hepatoprotective properties and to potentially aid in the regeneration of liver cells.⁹

Beetroot (*Beta vulgaris*) is a valuable source of betaine (trimethylglycine), which can act to reduce fatty infiltration and degeneration of the liver, as well as help to thin the bile for improved gallbladder function.^{10,11} Rodent models of chemically-induced liver injury show that beetroot extract attenuates oxidative stress, inflammation and apoptosis in hepatocytes, increases levels of glutathione and other antioxidant enzymes, and attenuates the increase in lipid peroxidation, nitric oxide synthesis and pro-inflammatory cytokines seen in rodents not treated with beetroot.^{12,13} Research in human liver cell lines in vitro suggests that betanin, a major component of beetroot, is responsible for some of the hepatoprotective effects by activating the nuclear factor erythroid-2-related factor 2 (Nrf2)-antioxidant response element (ARE) pathway.¹⁴

Benefits*:

- Supports healthy digestion
- Supports synthesis and proper flow of bile
- Facilitates absorption of fat-soluble vitamins and phytochemicals (e.g., vitamins A, D, E, K and carotenoids)
- Enhances glutathione activity
- Provides hepatoprotective antioxidants
- May help reduce the buildup of fat in the liver

Gallbladder support

Milk thistle and artichoke leaf extract (ALE) act as cholagogues and may help support processing and elimination of toxins. ALE was shown in rats to increase bile flow and total bile acid concentration.¹⁵ Owing to this role in enhancing hepato-biliary function, artichoke extract has been used historically to relieve digestive complaints such as nausea, abdominal pain, early sensation of fullness and loss of appetite.¹⁶ Taurine is instrumental in bile synthesis and therefore healthy liver and gallbladder function. Bile acids are conjugated to taurine (or glycine) to form bile salts, which are secreted into the intestinal lumen to emulsify fats. Research in rodents and in human liver cells in vitro indicates that taurine may lower cholesterol levels by increasing conversion of cholesterol into bile acids.^{17,18}

LV-GB Complex™ also provides ox bile. Use of ox bile in traditional medicine for liver and biliary issues dates back as far as 2500 years ago in China.¹⁹ Modern case reports show that supplementation with ox bile markedly decreases steatorrhea and increases absorption of dietary fat in ileectomy patients and patients with short bowel syndrome, which may also correct malnutrition related to impaired fat digestion and nutrient assimilation.²⁰⁻²² Use of ox bile to enhance digestion of fats and absorption of fat-soluble nutrients is not limited to such patients; those without a gallbladder or whose bile output may not be adequate may benefit from ox bile.

Who Should Take LV-GB Complex™?

Patients without a gallbladder, patients needing to improve liver or gallbladder function, those with inability to handle fatty foods and those with bloating, gas, GI distress, or skin problems may benefit from supplementing with LV-GB Complex™. This synergistic formula will aid fat digestion and improve absorption of fat-soluble vitamins. This product is also beneficial for detoxification support.*

Who Should Not Take LV-GB Complex™?

Patients experiencing acute upper abdominal pain or who are known to have a bile duct obstruction should not take LV-GB Complex™.

Supplement Facts					
Serving Size 3 capsules Servings Per Container 30					
Amount Per Serving		% Daily Value	Amount Per Serving		% Daily Value
Vitamin A (as Mixed Carotenoids)	1500 mcg RAE	167%	Taurine	100 mg	*
Vitamin B-6 (as Pyridoxal-5-Phosphate)	5 mg	294%	Inositol	100 mg	*
Vitamin B-12 (as Methylcobalamin)	15 mcg	625%	Ox Bile	75 mg	*
L-Methionine	150 mg	*	Artichoke (<i>Cynara scolymus</i>)(leaf) [standardized to contain 5% cynarin]	75 mg	*
Milk Thistle (<i>Silybum marianum</i>)(seed) [standardized to contain 80% silymarin]	150 mg	*	Beet Powder (<i>Beta vulgaris L.</i>)(tuber)	50 mg	*
*Daily Value not established.					

Other Ingredients: Microcrystalline cellulose, cellulose (capsule), sunflower lecithin, vegetable stearate.

Recommended Use

- As a dietary supplement, take three capsules per day with meals, or as directed by your health care practitioner.

For a list of references cited in this document, please visit:

https://catalog.designsforhealth.com/assets/itemresources/LV_GB_Complex_References.pdf

*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.

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